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Promoting or Restricting Competition? – The 50plus1-Rule in German Football

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Abstract: The 50plus1-rule in German football is a controversially discussed institution that regulates investment behavior of professional football teams. This paper discusses from a sports economics perspective the suspected market failures that the 50plus1-rule is expected to prevent. To examine the effects of the regulation empirically, we gathered panel data on 47 teams in the German Major League Football ("Erste Bundesliga") from the seasons 1989/90 until 2018/2019. Applying various approaches to measure financial and competitive imbalance in the league, we derive a growing trend of imbalance since the introduction of the 50plus1-rule. We employ a Difference-in-Differences approach to examine investment behavior in budgets and sporting success between afflicted competitors and those exempted from the rule. Our results do not suggest any equalizing properties of the regulation. We find anti-competitive effects and distorting properties of the regulation.

Keywords: 50plus1-rule, football, sports economics, financial regulation, investment, sport finance, soccer, competition economics

JEL-Codes: Z23, Z21, Z2**,** J83, L11, L50

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1. Introduction

Professional and commercial sports leagues are special types of markets as they are regulated both by external institutions (general laws, usually enforced by public authorities) and market-internal organizations and institutions. A league organization (either a sports association à la UEFA, IOC, FIA, etc., or a specific company like the Football Association Premier League Ltd (FAPL)) usually acts as a market-internal regulator, enforcing market-internal rules. A system of market-internal rules is necessary due to the specific character of sports leagues and championships like requiring common rules of the game, a common playing schedule, etc. (Neale, 1964; Késenne, 2007). In most commercial sports, the market-internal regulator acts as a monopolist due to the advantages of having one common institutional framework within which the teams or individuals can compete for the merits of being the best. However, such a monopoly regulator automatically enjoys considerable market power vis-à-vis the participants as well as upstream and downstream market players (Budzinski & Szymanski, 2015). Moreover, the regulator usually is not restricted to the rules of the game in a narrow sense but also extends its regulatory power to the commercial side of the league.[1] A centralized sale of broadcasting rights as well as financial regulation of the budgets and investment behavior of the competitors within the league regularly raise antitrust concerns as they obviously influence the competition within the league (inter alia, Massey, 2007; Peeters, 2012; Budzinski, 2018; Budzinski, Gaenssle, & Kunz-Kaltenhäuser, 2019). The regulation of the finances of the competitors by a market-internal monopoly regulator may serve the needs and best interests of the league as a whole (Schubert & Hamil, 2018). However, it may also anticompetitively bias the sporting competition due to self-interest of the regulator or vested interests of particularly powerful participants (Budzinski, 2018).

One example of such an institution is the so-called 50plus1-rule in German Football[2]. It regulates investment behavior of clubs in the major league ("Erste Bundesliga") as well as the lower league ("Zweite Bundesliga") by limiting the amount of external capital investment a team can acquire: somewhat simplified, the original non-profit club must keep a minimum of "50 per cent plus 1" voting rights of the commercial/professional team playing in the league.

[1] Even ostensibly sporting rules of the game may include a commercial dimension. For instance, the world football association (FIFA) introduced a new specification of the playing ball (making it harder to defend goals) for the 2010 football world championship in South Africa in order to make the games commercially more attractive through a higher number of goals. Furthermore, many sports regulators consider the effects on the television-attractiveness of their sports when adapting or changing sporting rules.

[2] Throughout this paper, we refer to football as the European-style football game, which is sometimes (mis-) labeled soccer.

Meanwhile, not all teams in the competition are affected by the 50plus1-rule, as exemptions exist. The rule may distort competition to the extent that the Federal Cartel Office of Germany is currently investigating the case (DFL, 2018; Reuters, 2018; TZ, 2019). Some competitors feel at a financial and sporting disadvantage and the granting of exemptions is controversial as well, e.g. the league repeatedly denied Martin Kind´s request to acquire majority stake in Hannover 96 in 2017-2019. However, even other league participants favor a deregulation on financial investments, as "the market would profit from liberalization", as an official of FC Bayern München stated.[3]

From a sports economics perspective, the core of the discussion is that, without this regulation, a plethora of market failures would occur in German football leagues (Vöpel, 2009; Suliak, 2019; Bauers et al., 2020). In this paper, we critically review and discuss the occurrence of these market failures. We assess the effectiveness of the 50plus1-rule to prevent these market failures by empirically analyzing investment behavior of football clubs in the Bundesliga. More precisely, we answer the research questions (i) did the 50plus1-rule reduce financial imbalances in the Bundesliga, (ii) did it decrease competitive imbalance, and (iii) did the exemptions distort competition in favor of the exempted competitors. Using a sample of 30 seasons of the German Bundesliga (before and after the introduction of the rule), we find no evidence that the 50plus1-rule reduced financial or competitive imbalances. However, we do find indication for a distortive effect on competition. We conclude that the 50plus1-rule in its current form has anticompetitive effects.

The paper is structured as follows: chapter 2 discusses the economic reasoning for regulatory interventions in football. Chapter 3 provides an empirical analysis of the effects of the 50plus1-rule on competitive balance and financial imbalances as well as on performance differences between 'normal' teams and such that were exempted from the rule. Chapter 4 discusses the implications from the empirical results in the context of the justifications of the 50plus1-rule. Chapter 5 concludes.

2. The Underlying Problems: In Need of Regulation?

The league´s notion behind the rule was the limitation of external investments in the league in order to "keep the amount of outside capital in the system reasonably low" and "ensure a close connection to the grassroots level of the sport (amateur level), which is an essential value of the sport"[4] (DFL, 2018). It is supposedly making the German Bundesliga "the most

[3] Karl-Heinz Rummenigge in Deutsche Wirtschaftsnachrichten (2019), (translated by the authors).
[4] Jan F. Orth in Suliak (2019), (translated by the authors).

beautiful and thrilling league in Europe because of its existence"[5]. These goals should be achieved while protecting competition and having no distortive effects; the effects of the rule should actually be "as neutral to competition as possible" (DFL, 2018). The following section depicts the economic reasoning for regulatory interventions in football leagues on a general level, and is therefore not only relevant for the debate on the 50plus1-rule. However, the following reasonings are commonly used in the debate as justifications for the 50plus1 rule.

2.1 Growing Financial Imbalances Jeopardize Competitive Balance

The concepts of outcome uncertainty and competitive balance represent important cornerstones of sport economic reasoning. Already the founding fathers of the discipline emphasized the uncertainty of outcome of sports contests as a major driving force of demand (Rottenberg, 1956; Neale, 1964): according to this view, the uncertainty about who is going to win represents the fundamental entertainment value of attending and watching sports contests. Therefore, the balance of competitiveness of the contestants (in short: competitive balance) is pivotal for the attractiveness and commercial appeal of sports contests. A long list of theoretical and empirical contributions dealt with the issues of outcome uncertainty and competitive balance since the founding days (recent overview: Pawlowski & Nalbantis, 2019). However, empirical evidence has been mixed at best and the injection of further theory elements like superstar theory (Kuypers, 1996; Falter & Perignon, 2000; García & Rodríguez, 2002; Berri & Schmidt, 2006; Simmons, 2006; Jewell, 2017), local hero and home winning preferences (Schmidt & Berri, 2001; Czarnitzki & Stadtmann, 2002), as well as insights from behavioral economics in general (Coates, Humphreys, & Zhou, 2012; Pawlowski & Budzinski, 2013; Budzinski & Pawlowski, 2014) cast doubt on a simple and linear interrelation of competitive balance and demand or fan preferences, respectively. There seems to be a consensus, however, that some competitive balance is both in the commercial interest of a professional sports league and desired by consumers (fans).

Among the driving-forces for competitive imbalance, financial imbalances play a prominent role. Higher budgets more often than not go along with more midterm sporting success (Forrest & Simmons, 2002; Quitzau, 2003; Frick, 2005; Drut & Raballand, 2012; Wilkesmann, 2014) – notwithstanding some prominent (mostly short-run) exceptions. Moreover, there is a self-reinforcing positive feedback loop at work: more sporting success usually implies winning a higher price and enhances the chances to become popular with the fans, so that more

[5] Hans-Joachim Watzke in Biermann (2012), (translated by the authors).

attendance follows as well as better sponsorship deals and higher merchandising revenues (Wilkesmann, 2014; Rohde & Breuer, 2016; Acero, Serrano, & Dimitropoulos, 2017). Without regulation, this self-reinforcing mechanism may drive growing financial imbalances that erode competitive balance – and, in the long run, may harm the commercial attractiveness of the sport in question. Therefore – and despite the ambiguous empirical evidence for the commercial relevance of competitive balance considerations – many sports leagues and championship organizers enforce market-internal rules that re-allocate some revenues and thus aim to limit financial imbalances (recent overviews: Budzinski, 2018; Schubert & Hamil, 2018). Instruments include, inter alia, various types of revenue sharing arrangements and budget caps as well as diverse allocation schemes for common revenues (like television-broadcasting and streaming revenues). However, all these (market-internal) regulations may also distort and restrict competition and generate anticompetitive effects themselves (Budzinski, 2018). Generally speaking, it is not per se clear whether internal institutions targeting to combat financial imbalances promote or restrict competition on balance; in any case, they will usually not be neutral to competition.

Limiting investment into competing clubs within a league may also target the prevention of financial imbalances and, therefore, address competitive balance considerations. If – and only if – financial imbalances are still limited (or under control by other regulatory instruments), restricting the access to capital markets and limiting financial inflows from investors may contribute to decelerating the natural trend towards financial imbalances. If contestants are relatively even budget-wise, a considerable investment into one contestant may yield relevant financial imbalances, creating a significant competitive advantage for this contestant irrespective of performance and talent (Lang, Grossman, & Theiler, 2011). However, if budgets already display imbalances that are beyond of what can be regained by performance-related income alone, then limiting investments may prevent catching-up investment which would be necessary to compensate the historical advantage of the former winners in order to improve competitive balance again (Budzinski, 2018). Those who propelled into superior budget volumes by past success and the self-reinforcing mechanism described above may retain their sporting success not because of contemporary talent but purely because of financial advantages. Re-creating a level-playing field may then require externally-financed catching-up investments. Investment into one of the previously poorer clubs may intensify competition for the top positions (just like investments into Manchester City, Paris St. Germain or RB Leipzig have created new serious competitors for incumbents like Real Madrid, Manchester United or

FC Bayern München both in national and Europe-wide tournaments). Like any regulation, limiting investment into contestant may involve distortive, anticompetitive effects by cementing the competitive order and erode options for taking competition to the leaders, thus preserving their supracompetitive rents (Budzinski, 2018).

Altogether, it matters whether and how a rule like the 50plus1-rule affects financial imbalances and competitive balance.

2.2 Increasing Influence of External Financial Investors

Next to (allegedly) amplifying financial imbalances, an increasing influence of external financial investors is often viewed to be a problem in itself (overview: Franck, 2010).[6] The term "external" refers to people from outside the sport (the famous "oligarchs and princes") and concerns relate to their motivation and influence on the matter of the sport. While sports clubs in Europe are usually viewed as being win-maximizers instead of profit-maximizers (Késenne, 1996, 2007; Vöpel, 2011), the utility function of external investors may center around reputation effects, money laundering, publicity, empire building, or expensive hobbies (Conn, 1998). Consequently, their goals may stand at crossroads with the goals of the sport insiders, for instance when it comes to investment into young player development and budding teams as well as support for the amateur elements of the sports system. Raising new talent is not only relevant for the attractiveness of the league in the long run; the importance of promoting home-grown talent also relates to the pivotal role of national teams in football including European and world championships as well as Olympic-game tournaments. An additional concern emphasizes the (lack of) long-run commitment to the sport: external investors with non-sporting motives may quit very sudden and withdraw their investment unexpectedly or even mid-season.[7] This may create negative externalities on other contestants and on the league as a whole if it jeopardizes match day schedules and distorts league structures.

From an economic perspective, it is difficult to argue in favor of discriminating among investors according to alleged motives. First, it is notoriously difficult to identify these motives. A rich oligarch could still be a sports fan, for all that matters. Second, it would be naïve at best to claim that motives like reputation, publicity, or empire building are beyond sports-internal persons and do not exist or influence sport-"internal" procedures and decisions. The whole

[6] For example "economically disadvantageous for the league as a whole", Hans-Joachim Watzke in Biermann (2012), (translated by the authors).

[7] Although this is a common bargaining instrument, actual cases are rare, e.g. billionare Turki Al-Sheikh withdrawing investments from Egyptian football team Pyramids FC (Youssef, 2018).

delineation between “internal” and “external” appears to be rather arbitrary. Third, the motivation difference between investment in ownership and investment in sponsorship is blurry and ambiguous as well as is any attempt to delineate internal, “earned”, financial means from external, “not earned”, financial injections. A donation can come from a fan enthusiastically desiring to support his club or from a wealthy businessman looking for a new toy. Sponsorship money can represent a sharp calculated advertising effort or be motivated by local patriotism and loyalty – or even driven by empire building desires of managers. Eventually, even taxpayer money can be injected to promote the local sports culture and competitiveness as well as the local economy and tourism – or to please sports fans and influential locals in order to maximize votes at the next election (Budzinski, 2018). Why should one motive to invest money into sports be allowed and the other not? How shall one reliably discriminate between different motives for investment? Shouldn’t this be done for motives of sports club members and buyers of sports club stocks as well?

If “external” investment goes into ownership shares instead of into sponsoring, fears about sudden removal seem to be ambiguous as well. Selling ownership shares without significant losses versus terminating sponsorship contracts – it is not clear at all that one systematically happens more sudden and unexpected than the other one.

With a view to the German Bundesliga, the German club structure needs to be considered. Germany has a tradition of sports clubs being nonprofit associations where virtually everyone can acquire membership, especially fans. In these clubs, voting rights are segregated and decision-making power considerably decentralized. On the one hand, this is not necessarily an efficient structure when it comes to running professional sports teams (Dietl & Franck, 2007; Rohde & Breuer, 2017), which is why 14 out of the current 18 Bundesliga clubs have organized their professional football department in some type of corporation outside but as a subsidiary to the (umbrella) nonprofit association. “External” investors may now buy shares of this corporations and this investment is regulated by the 50plus1-rule (see chapter 3.1). On the other hand, preserving the decentralized ownership structures in the shape of the nonprofit membership clubs may represent a legitimate regulatory objective.

2.3 Loss of Integrity of the Sport

The protection of the integrity of the sport represents another reasoning which is difficult to define in a precise way. While the integrity of the sport normatively represents another legitimate objective, it is empirically less clear whether the internal market regulators have the

same understanding of it as the consumers and fans. Actually, it is not even clear whether and how far consumers are valuing the integrity of the sport (Bauers et al., 2020). In connection with the preceding section, it may be understood to keep owners and generally influential individuals out of the sport that follow dubious motives. Here, the same reservations apply.

A related line of reasoning refers to the commercialization of the sport, driving away more important values like solidarity among contestants or public interest, cultural value, and the passion of football (Walsh & Giulianotti, 2001). Investment regulation may decelerate further commercialization although it is unlikely to represent an effective protection against this ongoing process since commercialization is not only driven by investments but also by reaping monopoly rents in the collective sale of broadcasting and streaming rights, stimulating the merchandise boom, adjusting to sponsorship needs and wants, and many more channels. A very important question is whether commercialization benefits or harms fans (consumers). The available literature often focuses on stated preferences (i.e. surveys among football fans) and derives a general dislike of commercialization (Herberger, Oehler, & Wedlich, 2013; Lammert, Hovemann, & Bauers, 2018), which must be somewhat differentiated between hardcore fans (strong dislike) and casual fans (more ambiguous preferences). If true, commercialization decreases fan interest in the sport and, thus, demand, harming the sport economically (Conn, 1998). These commercialization-critical preference statements from surveyed fans, however, stand in contrast to the revealed preferences (i.e. the actual demand behavior of fans) displaying an increasing demand of football despite its commercialization (see Fig. 1). A striking example is the ever-increasing demand for merchandising products despite drastic prices increases over the years.[8]

[8] Even though it was deemed to the "epitome of commercialization" by fans, Iuventus Turin sold approx. 3 Million Jerseys of Ronaldo within his first year with the club, gathering ~€300 Mio. in Revenue (Campbell, 2018). The transfer fee was €112 Mio.

Fig. 1, Data from DFL (2020)

Altogether, it appears to be very doubtful that commercialization is doing harm to the (majority of) consumers. Furthermore, a strange disbalance captures the attention: in virtually all areas of self-regulation, the German football league as well as its European counterpart runs a clearly pro-commercialization policy. A striking example includes the sale of broadcasting and streaming rights where the league employs (and abuses) its market power to maximize its revenues irrespective of negative effects on consumer welfare (Budzinski et al., 2019).

2.4 Combating Excessive Indebtedness and Overinvestment

A number of authors claim that professional football suffers from excessive indebtedness and systematic overinvestment (Vöpel, 2011; Müller, Lammert, & Hovemann, 2012; Sass, 2012). Since investments into the ownership of clubs and teams rather represent a cure than a cause for indebtedness, a regulation limiting investment into ownership (in contrast to constraining borrowing) – at first glance – cannot contribute to combating excessive indebtedness. However, it may assist the fight against overinvestment as – under certain assumptions – more investment into some clubs generates more investments by competing clubs, fueling a self-reinforcing upward spiral of overinvestment by win-maximizing teams. Usually, such systematic overinvestment does not occur in markets due to corrective mechanisms (inter alia, competition, lack of access to investment without realistic prospects, managerial rationalism, ac-

counting and licensing standards, insolvency rules, etc.). For professional sports markets, some assumptions have been suggested that may cause systematic or at the least widespread overinvestment despite the limiting factors. These include gambler-style lottery incentives for managers (as an extreme type of over-confidence) combined with rat-race-type competition conditions (Vöpel, 2011; Müller et al., 2012). However, the conditions for these assumptions cannot be identified in real-world football markets, neither in theory nor empirically (Budzinski, 2014, 2018). Other assumptions with more empirical support include soft-budget constraints (Andreff, 2007; Storm & Nielsen, 2012), moral hazard problems from too-prominent-to-fail phenomena (Budzinski, 2014), or taxpayer-financed bail-outs (zombie races; Franck, 2014). All of these issues point to problems with enforcing sound and effective insolvency rules, maybe in context with respective licensing conditions. Therefore, first-best solutions would address these regulations. Any contribution from one-sided ownership investment-limiting regulations is naturally limited, in particular since it creates trade-offs with potentially more dangerous borrowing amounts.

Altogether, a financial investment-restricting regulation like the 50plus1-rule is inappropriate as long as incentives for over-investment are not addressed. Excessive indebtedness clearly refers to borrowed capital and not to equity/venture capital injected by investors buying team shares. Therefore, this line of reasoning is not pursued in our empirical analysis. Furthermore, we discount the integrity-of-sport reasoning because it is difficult to operationalize in terms of quantitative empirical analysis. However, we do not imply to deny its relevance or importance in doing so. Thus, we focus our analysis on the two remaining lines of reasoning for inefficient market outcomes: Growing financial imbalances jeopardizing competitive balance and increasing influence of external financial investors.

3. Economic Effects of the 50plus1-Rule

3.1 The Rule, Its Exceptions, and Its Enforcement

The 50plus1-rule is an institution in the first and second major German Football league that regulates the ownership structure of participating teams (Becher & Burbach, 2018). Traditionally, football teams in Germany are run by non-profit clubs, which organize themselves based upon membership, i.e. in sports clubs usually consisting of active athletes and supporters. With increasing professionalism and commercialization of the major football leagues, this structure was often viewed to be outdated and incapable of managing a multimillion-dollar business. Therefore, more and more clubs sought to outsource their football teams into incor-

porated (commercial) subsidiaries of the club. Hence, for the 1998/99 season, the market-internal regulator shaped regulations for teams becoming "real" corporate enterprises and, thus, for equity/venture capital investors, acquiring shares in the teams' ownership ("Öffnung des Spielbetriebs der Lizenzligen für Kapitalgesellschaften"; (DFL, 2018)). However, the non-profit club historically running the team must keep owning at least 50 per cent of voting rights plus one additional vote (hence the name 50plus1) in the corporation now running the team (DFL, 2018). Consequently, investors can only acquire minority stakes in football teams of the two major German football leagues. The incorporation of teams appears in different variations in German law (GmbH, AG, KGaA)[9] but the different types can be treated similarly for our economic analysis. Note that the 50plus1-rule does not limit actual capital investments *per se* but regulates voting rights. However, voting rights and ownership of capital are, more often than not, closely related, so *de facto* it limits equity capital investment as well. For limited partnerships, the club must own 100 per cent of the general partner of the partnership and be empowered by law to behave as if they had the majority (Brüggemann, 2018). This explains how capital investments and voting shares can diverge, and do quite regularly (FC Augsburg, FC Ingolstadt, Hannover 96, RB Leipzig, TSV 1860 München; Bauers, Lammert, & Hovemann, 2015). The rule also prohibits multi-club ownership by limiting the number of corporations that a club can hold shares in to one. It is part of the constitution of the German Football League (Satzung des DFL e.V.; §16c), as well as the charter of the German Football Association (Satzung des DFB; §8), therefore it prevents clubs from participating in competition if they do not comply with this institution.

However, the rule does not apply to every team in the competition as there are some legal exceptions. If the investment by a non-club (i.e. by an investor) into a team has been "continuous and substantial" for more than 20 years[10], the league allows this investor to acquire a majority share of the voting rights. Originally, this exemption related to two teams that, at the time of the introduction of the rule in the season 1998/99, were already owned by investors: Bayer 04 Leverkusen and VfL Wolfsburg, both historically financially supported by corporations outside of the sport as external investors (chemistry company Bayer AG and car-maker Volkswagen AG, respectively). In 2005, TSG 1899 Hoffenheim gained an exemption from the rule and was able to include its private investor Dietmar Hopp (co-founder of software

[9] *GmbH* is the German version of a limited liability company without stock market access, whereas *AG* is a public limited company (with stock market access). *KGaA* is a limited joint-stock partnership.

[10] In the beginning of the regulation, the support was required to be previous to 1999. This extensional condition was abolished after a legal complaint by Martin Kind.

giant SAP) as a majority stakeholder in its football operations corporation. From 2017 on, Hannover 96 and it´s president Martin Kind (owner of a hearing aid device company) was in a sustained dispute with the league, after filing an application to be exempted from the rule. Finally, in 2019 Martin Kind and Hannover 96 withdrew their application after various legal proceedings (Spiegel Online, 2019). Other investors, like Hasan Ismaik (TSV 1860 München) are still legally fighting against the regulation. RB Leipzig represents a special case in question. Drinks company Red Bull bought the Leipzig-based football club SSV Makranstädt, who was playing on amateur level outside the professional leagues and turned it into "Rasen-Ballsport Leipzig". On paper, it follows the rulebook by having this membership-based club running the team, however, the voting rights members of the club originally consisted solely of affiliates of Red Bull (there are currently still only 14 club members with voting rights, which however are said to be independent of Red Bull). Furthermore, the Bundesliga team is run by a limited liability company, in which the club has 1 per cent of the shares and Red Bull 99 per cent. However, Red Bull waives a sufficient number of voting rights, so that the club keeps the majority of voting rights in the corporation running the team. Thus, it is controversial whether RB Leipzig is plainly circumventing the 50plus1 rule and *de facto* represents an exception as well.

3.2 Data and Descriptive Statistics

In order to approach our research questions, we gathered data on teams of the Bundesliga. Specifically, we collected a unique longitudinal data set on 47 football teams in the first (major) football league of Germany (Erste Bundesliga) from the season 1989/90 to the season 2017/18. Along with our research purpose, we focus on players' budget of the teams and points achieved in a season. All variables were measured by seasons.

Variable	**Obs.**	**Min.**	**Max.**	**Median**	**Mean**	**Std. Dev.**
Budget (infl)	396	€6.1 Mio.	€262.2 Mio.	€33.4 Mio	€38.7 Mio	€26.2 Mio
Points (season)	432	18	91	44	46.66	13.4

Tab.1, Descriptive overview of the dataset

We track budget numbers from statements by clubs and official press releases by the league. These statements may contain estimations; however, the pre-season numbers do seem to match quite reliably with actual numbers *ex post*. Where no such official data was available,

we gathered professional estimations by experts in the field and sports journalists. We are aware of the limitations of these estimations. However, the DFL (German Football League) itself has corroborated the validity of these estimations (Wilkesmann, 2014). Seasons 1989/99 through 2013/14 are based on data from the major German football magazine "kicker Sportmagazin" (Olympia Verlag). Values for the seasons 2013/14 until 2018/19 were compiled from various journalistic sources.[11]

For the purpose of our analysis, we proxy a team´s budget by the monetary resources allocated to the player´s section of the team ("Lizenzspieleretat"). Premium payments and special bonuses are included in our budget numbers, but do not appear in player's salary lists, hence do not stipulate the salary payments made to players (Randerath, 2018). Our budgets are an approximation of what clubs were planning in their internal cost calculations (as far as the limitations of our data go) and do not capture alterations during the season. These budgets are directed to players on the squad. They therefore exclude payments to trainers and other staff as well as investments in youth development programs. In addition, other streams of income for players, e.g. individual advertisement deals are not included. We reference gross payments.

We are missing some data on budgets of at least some of the teams in 8 of 30 seasons.[12] However, we observe steady and therefore predictable trends in budget development in the panel entities of teams where we have uninterrupted longitudinal data. Budgets do not vary erratically across seasons and medians of budgets are largely consistent (see Figure 2). We adjusted these values for inflation, as to counteract inflation effects and make budgets across time more comparable. There is an upward and diverging trend in budgets over the seasons, even after adjusting for inflation.

[11] Rother (2018) , Rheinische Post (2011), Rheinische Post (2018).

[12] We excluded data for the 1999/00 season completely, as this data´s source does not seem reliable and estimated values erratically differ from all other seasons.

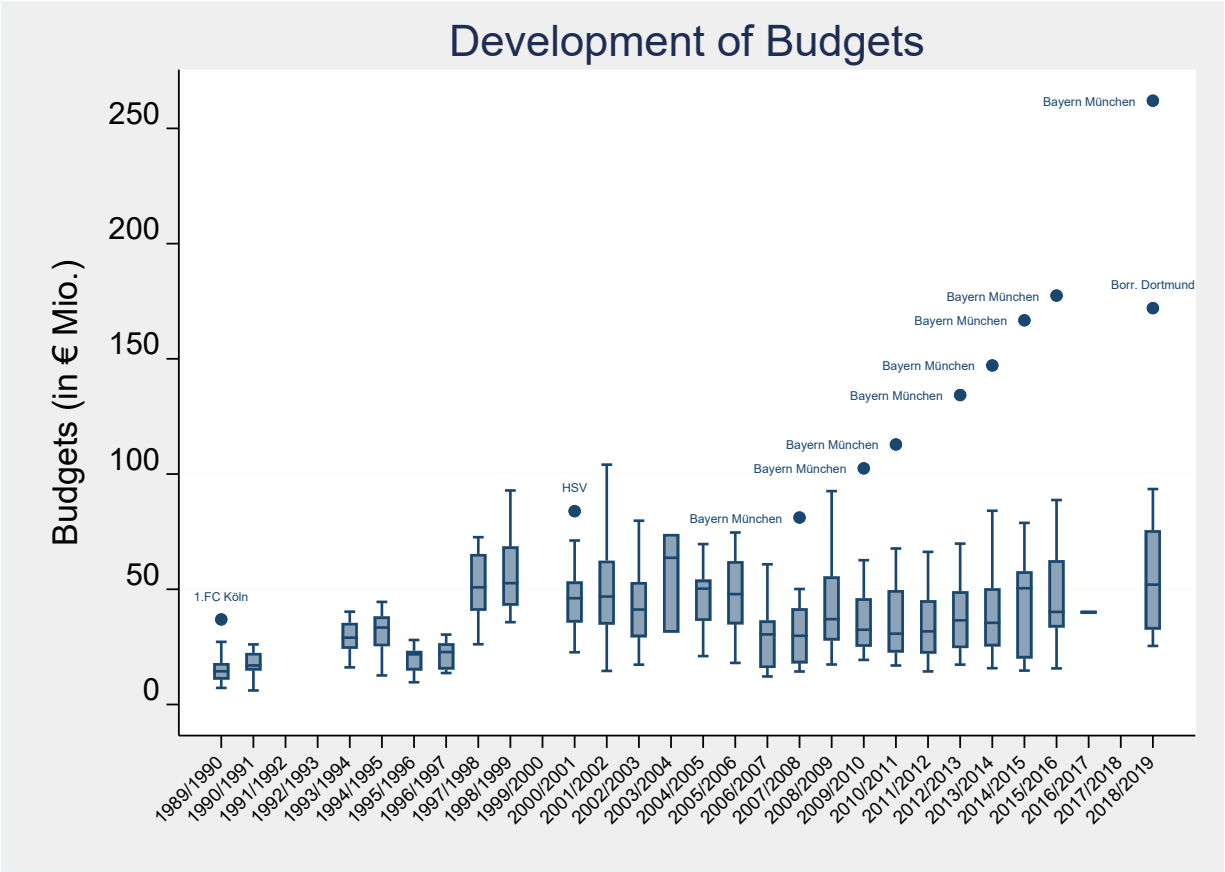

Fig. 2, Development of Budgets

Upper and lower limits of boxes represent the 25%/75%-quartile, the median is plotted as a line within the box. Dots represent outliers according to a standard Tukey outlier definition of 1.5IQR (Tukey, 1997).

Sporting success is measured by points achieved by a team in a season. We have comprehensive data without any missing values for all seasons of our panel, starting in 1994. We only use teams of the first German Bundesliga in our dataset because there is a large discontinuity in revenues between the first Bundesliga and lower leagues.[13] Revenues from TV broadcasting rights, ticket and merchandise sales drop off noticeably, which probably stems from focus of the fans on the highest championship race, team allocation advantages and superstar effects.

3.3 Financial and Competitive Imbalance in the German Bundesliga

In this section, we address our first two research questions: (i) did the 50plus1-rule reduce financial imbalances in the Bundesliga, and (ii) did it decrease competitive imbalance? We

[13] For a discussion of the repercussions of inequality between first and second division, see Dietl, Franck, and Lang (2008).

evaluate the development of financial and sporting inequality across seasons by using standard measures of inequality within seasons (Pawlowski & Nalbantis, 2019). We consider team's player budgets for a season as well as points scored by the end of the season (end-of-season league outcomes, Owen & King, 2013). The measures of Herfindahl-Hirschman-Index (HHI) and Gini coefficients were computed from data of complete seasons that were available in the dataset (no missing values), as these rely on the completeness of information on all competitors and are not comparable otherwise (Kamerschen & Lam, 1975; Pawlowski, Breuer, & Hovemann, 2010). We exclude seasons with incomplete seasonal/panel data in this analysis.

Measures of Financial Imbalances

We use the Herfindahl-Hirschman-Index (HHI; Hirschman, 1964) and Gini coefficients (Gini, 1921) to measure financial imbalance.

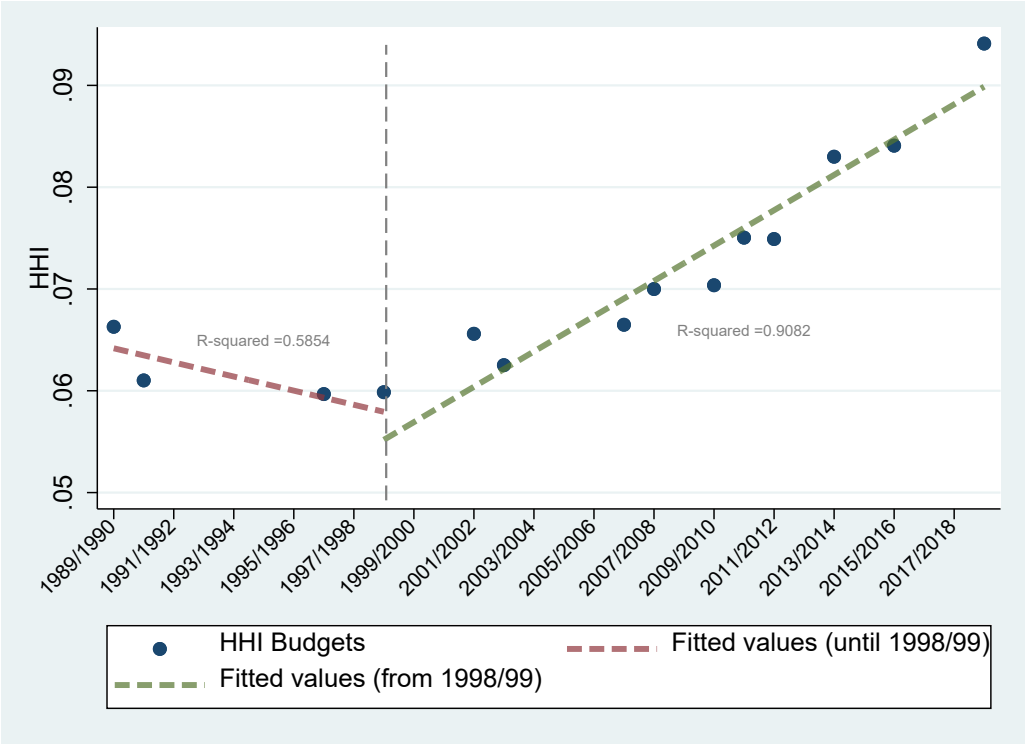

Fig. 3, HHI of Budgets

The HHI is the quadratic summation of all competitors market shares in an industry, and is defined as $HHI = \sum_i^N (MS_i{}^2)$, where MS_i is the market share of the i^{th} competitor as expressed in percentage of the whole market size (Depken, 1999). The HHI measures the concentration of an allocation towards the top players in a market; the higher its values are the more concentrated is a market. Here, this means that the concentration of budgets in favor of

the richest teams and thus financial imbalance significantly increased after the introduction of the 50plus1-rule (mean before intervention = 623.2; after = 732.0). After a slight downward trend in the 1990s, the HHI of budgets has increased every season after 2002/03.

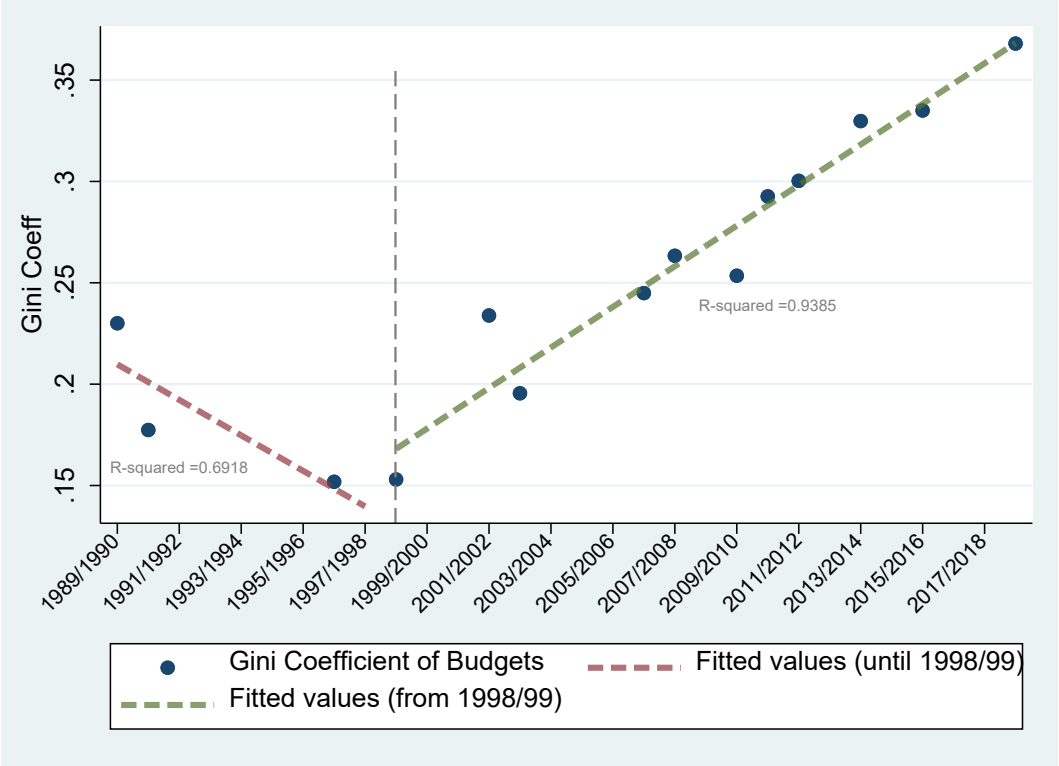

Fig. 4, Gini Coefficients of Budgets

The Gini coefficient is a measure of statistical dispersion to represent and evaluate inequality of wealth in economies. Our analysis uses it to analyze inequality in the distribution of wealth in the Bundesliga.[14] We observe a clear upward trend (a higher Gini coefficient signaling higher inequality) over the observed timeframe (mean before intervention = 0.1864; after = 0.2699). Compare the development of the Gini coefficients to the work of Frick (2005), who found a similar development of team´s budgets in the years 1981–2003. In the following years, we observe a largely constant and considerable incline in financial imbalance among teams, especially after the introduction of the 50plus1-rule (from 1998/99 onwards).

The Atkinson-Index is a similarly used inequality measure that allows for varying sensitivity to inequalities within the distributions (Atkinson, 1975). It implements a poverty aversion/sensitivity parameter A(ε) which weighs the low end of the distribution more strongly in the result of the index. For our analysis, it indicates by its subgroups that the top part of the

[14] Fort and Quirk (1995) and Schmidt (2001) use Gini coefficients to measure competitive balance. Since our analysis examines budgets, we apply it to monetary wealth.

wealth distribution accounts for more of the inequality in the league. Budgets among the richest teams are a major driver of financial imbalance in Bundesliga because the index grows proportionally with increasing poverty sensitivity of the index A(ε).

Season	A(0.5)	A(1)	A(2)
1989/1990	0.04192	0.08045	0.14733
1990/1991	0.02746	0.05763	0.12670
1996/1997	0.01948	0.03944	0.07940
1998/1999	0.01821	0.03572	0.06830
2001/2002	0.04450	0.08986	0.18370
2002/2003	0.03120	0.06264	0.12525
2006/2007	0.04920	0.09854	0.19180
2007/2008	0.05564	0.10668	0.19360
2009/2010	0.05212	0.09743	0.17059
2010/2011	0.06864	0.12819	0.22211
2011/2012	0.07238	0.13831	0.24955
2013/2014	0.08832	0.16128	0.27054
2015/2016	0.09252	0.16974	0.28797
2018/2019	0.11229	0.19787	0.31106

Tab. 2, Atkinson-Indexes

All measures of financial imbalances show a clear/significant effect of growing budget imbalance after the introduction of the 50plus1-rule. While the coincidence is obvious and empirically indisputable, deriving causation would require to control with other events taking place at the same time (see chapter 4). However, it can be concluded that the empirical picture shows no indication that the introduction of the 50plus1-rule has reduced financial imbalances.

Measures of Competitive Imbalance

In order to analyze the effect of the 50plus1-rule on sporting imbalance, i.e. competitive imbalance, we again first look at the HHI. The maximum range of the HHI in a 18-Team league is defined by the value attained by a perfectly balanced league (lower limit) and a perfectly unbalanced league (upper limit), represented by the tightly dotted lines in Fig. 5 (Michie & Oughton, 2004). An increase in this index indicates a higher concentration of league points.

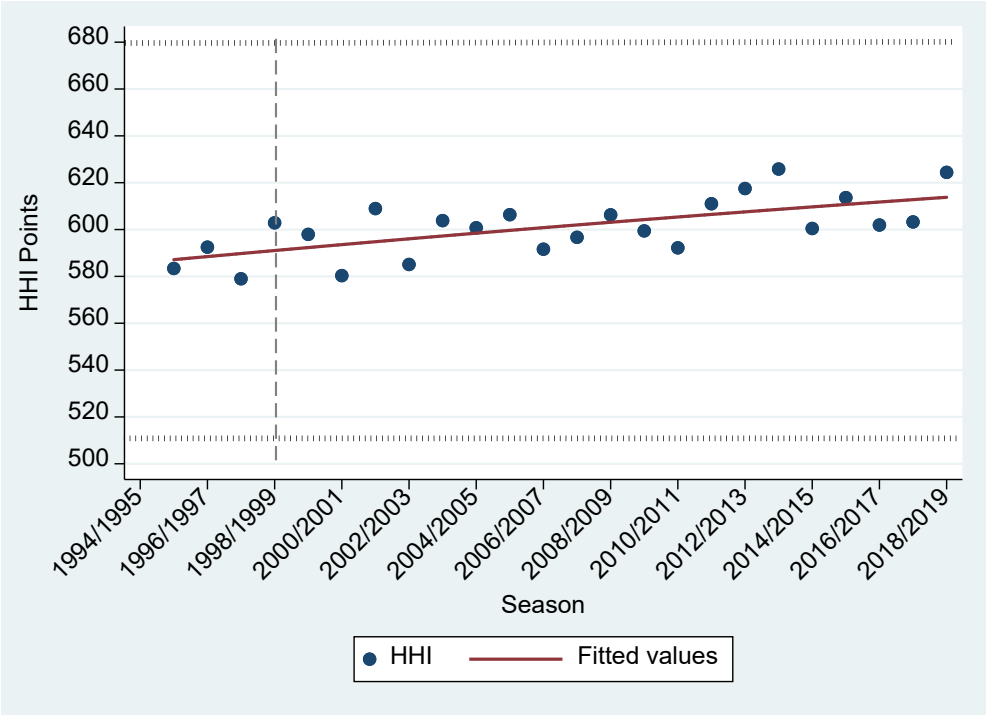

Fig. 5, HHI of Points[15]

There is an observable trend of increasing concentration of sporting success, as measured by points in a season (mean before intervention = 584.95; after = 603.35). Values range from moderate concentration (in relation to the potential range of the index, below HHI = 600) to a semi-high concentration in the seasons after 2010. We do not observe any strong alteration to the general trend of concentration with the introduction of the regulative change in 1998/1999.

The H-Index of Competitive Balance (HICB) is the ratio of the HHI to the HHI of a perfectly balanced league (Depken, 1999; Pawlowski et al., 2010). It relates closely to the standard deviation of winning percentage (Scully, 1989; Quirk & Fort, 1992), which is typically used to measure competitive balance in American Sports Leagues, but is not very useful in European football leagues due to their 3-1-0 scoring system and the comparatively higher likelihood of draw games. The mean value of HICB across seasons before intervention was 105.29, after intervention 108.60 with no visible effect of the intervention.

[15] We calculate the prediction from a linear regression on seasons and plot the resulting line (linear prediction plot). Residuals are distributed randomly.

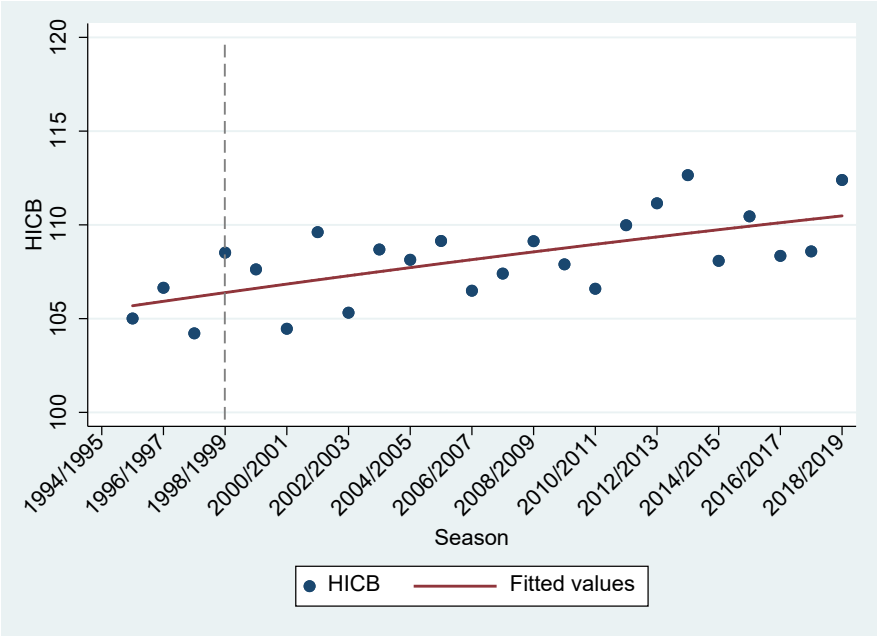

Fig. 6, HICB

The C5-Index of Competitive Balance analyses the seasonal points of the Top5 teams. A slight decrease in the trend of oligopolization after the intervention (2000/01) could be suspected, only to continue after 2005/06 (mean before intervention =129.88; after = 137.40).

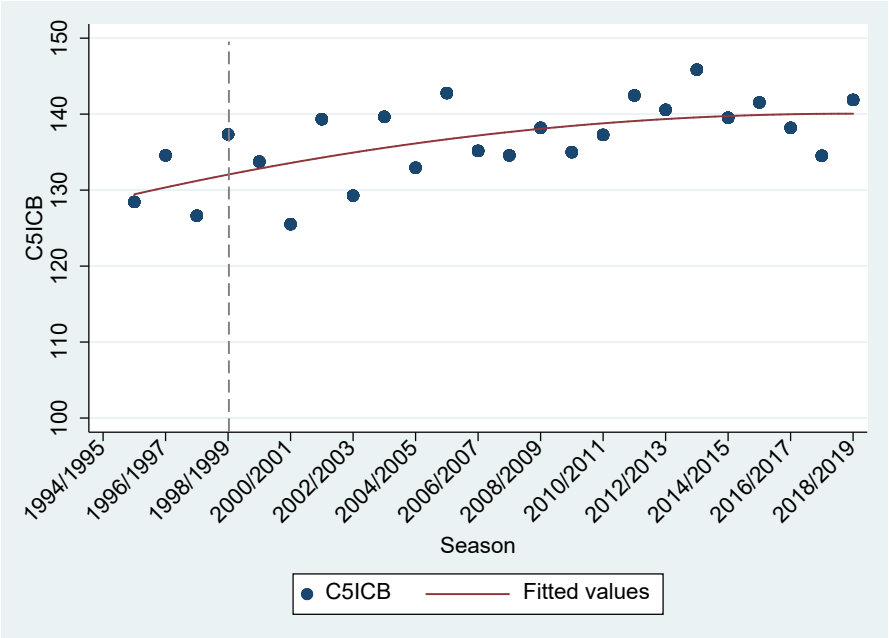

Fig. 7, CICB

Altogether, no conclusive empirical picture emerges. The introduction of the 50plus1-rule did not stop the ongoing trend towards more competitive imbalance or just very temporarily. Again, alternative explanatory events would be required for conclusions about causation (see

chapter 4). However, there is no indication that the 50plus1-rule reduced competitive imbalance.

3.4 Distortive Effects on Competition?

Our third research question, did the exemptions distort competition in favor of the exempted competitors, requires to differentiate between the performance of the "ordinary" teams, subject to the regulation, and the "exemption teams" with more scope for external investors. From this, we derive the following hypothesis:

H1: *Teams, which have an exception from the 50plus1-rule, differ systematically in their development over time from clubs that fall under the rule.*

We use a Difference-in-Difference approach to estimate the effect of the intervention on team´s players' budgets and sporting success. A Difference-in-Differences approach is especially useful when randomization on the individual level is not possible (natural experiment) and a commonly accepted econometric approach to treatment effect analysis. Since the participating teams in the Bundesliga were non-randomly determined, we must rely on observational data. We do not designate which entities get the treatment, however the data does clearly define the subpopulation that was exposed to the intervention.

A Generalized Difference-in-Differences Approach

Our model includes multiple pre- and post-treatment periods because the intervention of the 50plus1-rule does not affect all entities at the same time. Therefore, we employ a generalized version of the Difference-in-Difference method. Not all exceptions were immediately granted with the introduction of the 50plus1-rule (varying pre-/post-treatment phases between entities). For instance, TSG 1899 Hoffenheim switched from the control group to the treatment group by gaining an exemption from the 50plus1-rule after not being subject to the intervention from 1999 until 2015. For this specific DiD-analysis, we compare exemption clubs to all other clubs (which are subject to the rule).[16] Clubs that have an exception from the 50plus1-rule are in the treatment group, all other clubs constitute the control group. With regards to budgets, this leaves us with 30 clubs; three receiving the treatment of an exception from the rule at some point of the panel and 27 clubs without the treatment. Considering points, we observe 33 clubs respectively 30 without the treatment.

[16] Clubs that run their teams without an intermediate corporation formally do not fall under the 50plus1-rule. However, due to their non-profit membership club character, they cannot take in equity investors at all. As such they are economically more similar to the intervention group than to the exemptions.

To adjust for a possible deviation from the parallel paths assumption, we use a DiD-approach with covariates. The methodological groundwork for this was proposed by Abadie (2005) and Bertrand, Duflo, and Mullainathan (2004). We use a time fixed-effects and entity fixed-effects model. Our two-way fixed-effects model eliminates bias from unobservable variables that change over time but are constant over teams, and controls for factors, which differ across teams but are constant across seasons. The constant variables for entities, which correlate with the independent variable, are dropped. A fixed-effects model seems applicable to our case because we suspect many of the omitted variables to be time-invariant. For football teams, time-invariant effects with time-invariant values are likely: the location of a football team does not change over time (there is not a single re-location in our sample), as re-locations are not as frequent as in American sports leagues (Depken, 2016). The effect that a team´s home city has on the team is invariant across time and cities/regions develop rather slowly. The effect that management has on the team is rather constant and management of football teams tend to change rather slowly compared to individual talent (players on the team), or seasonal budgets. The financial resources of a team determine the ability to pay for talented players, therefore we assume that this also correlates with the ability to pay for talented coaches and athletic staff. We proxy past success by using the end-of-season points from the previous season because decisions on next season´s budget occur near the end of the previous season.

Contrary to other Difference-in-Differences models, we use entity fixed-effects instead of group fixed-effects because teams are not specific to their group and change status over time. With the Durbin-Wu-Hausman test, we establish that the differences in coefficients are systematic; therefore, we reject the Hausman's null that the differences are non-systematic and choose a fixed-effects model.

$$Y_{it} = \beta_0 + A_t + F_i + \beta_1 C_{it} \cdot T_{it} + \beta_2 P_{it-1} + \epsilon_{it}$$

$$Y_{it}\ Budget\ of\ Team\ i\ in\ Season\ t$$

$$A_t\ Time\ fixed\ effects$$

$$F_i\ Team\ fixed\ effects$$

$$C_{it} \cdot T_{it}\ Treatment\ effect$$

$$P_{it-1}\ Points\ of\ Team\ i\ in\ the\ previous\ season$$

$$\epsilon_{it}\ error\ term$$

β_1 is the *Difference-in-Differences estimator*, an interaction term of the dummy variables of the treatment vs. control group status of team i in period t, $C_{it} \cdot T_{it}$ (making it subject to the treatment) and the team *i* being subjected to the intervention of the 50plus1-rule in t.

$$\widehat{\beta_1} = (\bar{y}_{T=1,C=1} - \bar{y}_{T=1,C=0}) - (\bar{y}_{T=0,C=1} - \bar{y}_{T=0,C=0})$$

,where $\widehat{\beta_1}$ is the average estimated effect of the treatment of an exception from the rule. Moreover, we apply a similar approach to seasonal points of teams.

$$P_{it} = \beta_0 + A_t + F_i + \beta_1 C_{it} \cdot T_{it} + \beta_2 Y_{it} + \epsilon_{it}$$

$$P_{it}\ \ Points\ of\ Team\ i\ in\ Season\ t$$

$$A_t\ Time\ fixed\ effects$$

$$F_i\ Team\ fixed\ effects$$

$$C_{it} \cdot T_{it}\ Treatment\ effect$$

$$Y_{it}\ \ Budget\ of\ Team\ i\ in\ Season\ t$$

$$\epsilon_{it}\ error\ term$$

In a third model (3), we interact the effect of the treatment with the budget of the team, and use sporting success as an independent variable.

$$P_{it} = \beta_0 + A_t + F_i + \beta_1 C_{it} \cdot T_{it} + \beta_2 Y_{it} + \beta_3 Y_{it} \cdot C_{it} \cdot T_{it} + \epsilon_{it}$$

$$P_{it}\ \ Points\ of\ Team\ i\ in\ Season\ t$$

$$A_t\ Time\ fixed\ effects$$

$$F_i\ Team\ fixed\ effects$$

$$Y_{it} \cdot C_{it} \cdot T_{it}\ Interaction\ effects\ of\ Treatment\ and\ Budget\ in\ Season\ t$$

$$P_{it-1}\ Points\ of\ Team\ i\ in\ the\ previous\ season$$

$$\epsilon_{it}\ error\ term$$

We acknowledge the limitations of the Difference-in-Differences approach. The parallel paths assumption is a rather strong assumption and method-oriented literature has proposed solutions for non-conformance with it (Abadie, 2005; Lechner, 2010; Callaway & Sant'Anna, 2018; Chan & Kwok, 2018; Maier-Rigaud & Sudaric, 2019). We support the parallel paths assumption for our data as we observe reasonably similar trends (note: not similar outcomes) among the control group and the treatment group (see Fig. 2) before the intervention. The deviation from the parallel path (e.g. by FC Bayern München) occurs only after the intervention and is therefore included in the estimation of the effect of non-treatment. Serial correlation of dependent variables is a standard limitation in Difference-in-Differences estimations

(Bertrand et al. 2004). Our inference draws from a considerably long time series (30 years), which raises the likelihood of serial correlation. Furthermore, our dependent variables of league points in a season and players budget are serially correlated because, as we find in our results, past success breeds future success (see results). Considering the Stable Unit Treatment Assumption (SUTVA; Rubin, 1986), there might be spillover effects of the treatment from the treatment group to the control group. If treatment clubs raise their budgets, control clubs likely try to keep up by also elevating their budget as they compete for the same end-of-season positions and players' talent.

Our control group consists of clubs with a corporation running the commercial football business and such without. For our analysis, we assume that this spillover affects all entities at the same intensity. It is possible that clubs at the lower end of the budget hierarchy are more affected by this spillover because lower revenue clubs are more likely to have maintained the non-corporate legal status. Non-corporate clubs achieve an average (mean) of 41.8 points in a season with an average budget of €28.8 Mio., where corporate clubs achieve 49.1 points with an average €45 Mio. In 13 out of 17 seasons[17], more than half of the non-profit membership clubs had a budget below that seasons' average.[18] If anything, the effect of the non-treatment is overestimated by this identification strategy, making the intervention of the 50plus1 rule more efficacious than its truly is. Overall, the limitations of the Difference-in-Differences approach do not invalidate our conclusions.

[17] Due to limitations of our data, only 17 seasons allowed for such a statement.

[18] Relative spending is of higher importance than absolute spending, with an efficient player´s market (Leach & Szymanski, 2015).

Results

VARIABLES	(1) Budgets	(2) Points in Season	(3) Points in Season
Exception = 1	**-13.80** (0.116) *-31.23 - 3.617* *(8.518)*	**5.974***** (0.0004) *2.844 - 9.104* (1.542)	**-2.196** (0.561) *-9.801 - 5.409* (3.746)
Budget in Season	-	**0.157***** (0.000) *0.0880 - 0.227* (0.0342)	**0.152***** (0.000) *0.0868 - 0.217* (0.0320)
Points in Previous Season	**0.566**** (0.0301) *0.0583 - 1.074* (0.248)	-	-
Exception#Budget	-	-	**0.163**** (0.0306) *0.0162 - 0.311* (0.0725)
Constant	-3.775 (15.91) -36.32 - 28.77 *(0.814)*	45.20*** (0) *41.38 - 49.03* (1.882)	45.31*** (0) *41.50 - 49.12* (1.875)
Observations	268	329	329
R-squared	0.373	0.345	0.117
Number of Teams	30	36	36

P-values, Robust SE in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Tab. 3, Results

These results use robust standard errors to account for autocorrelation between the pre/post-periods of the same entity (Eicker, 1967; White, 1980). We acknowledge that we do face endogeneity of these variables. In model (1), we do not find a significant effect of an exception from the 50plus1-rule on budgets (p-value $= 0.116$, 95% CI $= -31.23\ ;\ 3.617)$. Having an exception from the 50plus1-rule appears to be, contrary to some parts of literature (see chapter 2), not a guaranteed way for clubs to gain a financial edge on competitors. According to model (2), however, an exception from the rule does have a significant positive effect on sporting success, measured by points on the season (p-value $= 0.0004$, 95% CI $= 2.844\ ;\ 9.104)$. Also, budgets have a positive significant effect on the points in the season (p-value < 0.0001, 95% CI $= 0.0880\ ;\ 0.227$). Also, points in the previous season significantly and

positively influence budget in the following season (p-value = 0.0301, 95% CI = 0.0583 ; 1.074).[19]

In model (3), the negative coefficient for the effect of budgets on points cannot be interpreted reliably, because the interaction term of budgets and the intervention influences the coefficient for the effect. The negative coefficient is not statistically significant and is in line with the positive significant coefficient for budgets in model (2). In order to interpret the interaction term of budgets and having an exemption from the 50plus1-rule, a average marginal effects approach is employed. In the interaction of budgets and having an exemption from the 50plus1-rule, we observe a trend (see Fig. 8). With an increase in the budget of a team, the differences from having an exemption from the rule increase significantly. This effect is statistically significant as all 95%-CI for all values in the sample are above zero. Being subject to the 50plus1-rule or having an exception matters more for higher budget teams. Therefore, we can infer a distortion of competition by the rule as it affects smaller clubs significantly less than bigger clubs. Based on our empirical evidence and theoretical groundwork on the pay-performance relationship, it could be suspected that this influences sporting success as well. Having an exception from the 50plus1-rule does influence sporting success positively. Therefore, a higher efficiency of budget use/resource spending seems to appear in exempted clubs than in non-exempted clubs.

[19] Our results support the well-established *pay-performance* relation (Forrest and Simmons (2002); Franck and Nüesch (2011)), where investments into players in previous periods (as well as in the same period) correlate with the placing within the championship race.

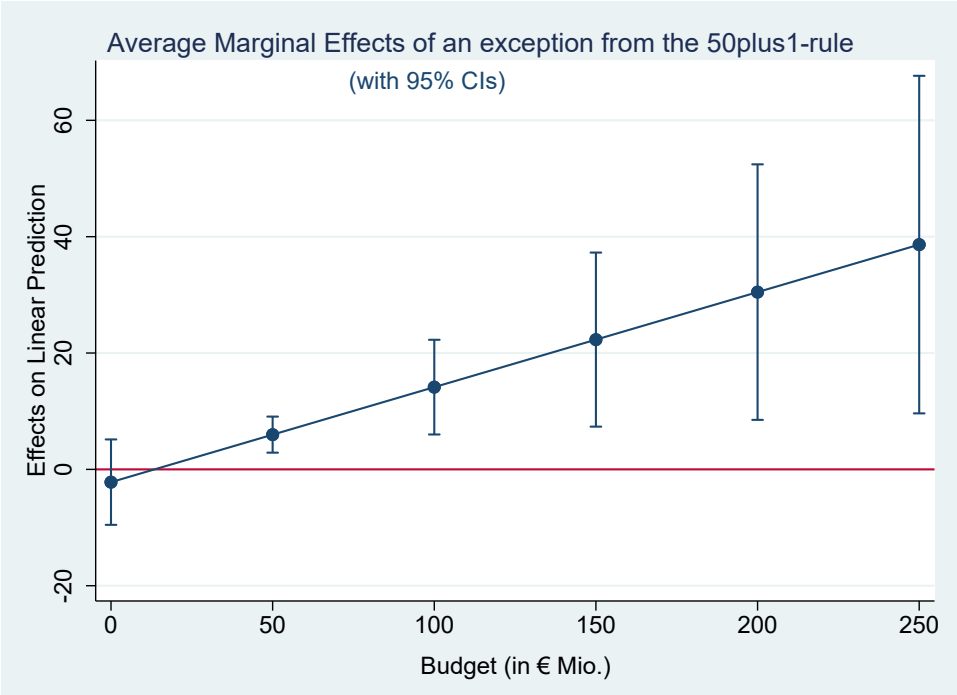

Fig. 8, Average Marginal Effects of an Exception

4. Implications

RQ1 and 2: Does the 50plus1-rule reduce financial and competitive imbalances?

In our analysis of inequality in budgets and points, we find a low number of high budget teams with an increasing upward trend and a high number of relatively low to medium budget teams which are persistently stagnating when adjusted for inflation. Both financial imbalance and competitive imbalance have been constantly increasing during the last 20 years with this trend being more concise for the increasing inequality of budgets than for the inequality of points allocation (see chapters 3.2 and 3.3). In the more recent seasons, this development correlates with sporting dominance by FC Bayern München who enjoys a substantially (multiple times) higher budget than every other club and won all Bundesliga seasons since 2012. We do not find empirical evidence that the 50plus1-rule prevents or reduces financial or competitive imbalances. Quite in contrast, the introduction of the investment-limiting rule coincides with a change in the trend of budget allocation from budgets getting more equal before the rule came into force to budgets becoming increasingly unequal after it (see chapter 3.2). Furthermore, the introduction of the rule has no visible reducing effect on competitive imbalance (see chapter 3.3).

However, we cannot conclude from our analysis that the 50plus1-rule causes the change in trend and is a major factor in the growing inequality. Instead, the regime switch from an equal

distribution of TV money to a mixed system with a considerable share of a performance-related allocation of these common revenues (starting with the 2000/2001 season) may be another candidate for being a driver of inequality. Notwithstanding, it would be speculative to conclude that the 50plus1-rule has alleviated the trend towards inequality in the face of other forces. If at all, such an effect appears to be minimal. Furthermore, given the severity of the intervention (effectively restricting the freedom of business), our analysis very clearly shows that limiting financial and competitive imbalances must be addressed by other means. An obvious choice could be the allocation scheme of common revenues like television/media money (Budzinski 2018) or the cartel-like structure of selling media rights (Budzinski, Gaenssle, & Kunz-Kaltenhäuser 2019). Eventually, higher placement in the league gives teams access to international competitions. Places one to four directly qualify for the UEFA Champions League, the national cup winner ("DFB-Pokal") and the fifth place league finisher qualify for the UEFA Europa League, and the sixth place finisher gets to attend the Europa League qualification play-offs (DFL, 2019). These international competitions yield considerable revenues from, inter alia, international broadcasting rights and additional ticket and merchandise sales.[20] Access to international competition brings an advantage to high placing teams that other competitors cannot enjoy, further fueling an uneven playing field in the following time periods.

In summary, the financial imbalances are market-internal and caused by institutions that league itself enforces on the competition, and not by any market failure.

RQ3: Does the 50plus1-rule distort competition?

Our empirical analysis reveals conclusive indication that the exceptions to the 50plus1-rule distort competition within the league. Thus, the 50plus1-regulation falls short of the goal of the market-internal regulator to establish an investment regulation that is neutral to competition. This result is hardly surprising as putting competitors from the same league under different investment regulations clearly violates the notion of a competitive level-playing field. Thus, a minimum implication of our analysis is to abolish the exemptions from the 50plus1-rule and withstand the lobbyism of incumbent beneficiaries of investor ownership like Bayer Leverkusen or VfL Wolfsburg. If a restrictive rule on investment can be justified at all, it must be non-discriminatory and must not contain tailormade exceptions. The complex condi-

[20] In the 2003 season, the total amount of payouts to participating clubs in the UEFA Champions League, UEFA Europa League and UEFA Super Cup amounted to €549m (UEFA 2005). Compare that to the 2019 season, where the officially estimated payouts are four to five-fold (€2.55bn) (UEFA, 2019).

tions for granting new exemptions may be the same for everyone on paper, but are difficult to understand regarding its properties in any different context than incumbent protection. Obviously, next to abolishing the exemptions, abandoning 50lpus1 as a whole would also erase the distortive effects from the regulation.

On the international level like in UEFA's Champions League and Europa League, German clubs may experience an loss of competitiveness (Drut & Raballand, 2012; Budzinski & Müller, 2013). The teams may be at a disadvantage through the limitations of their economic investment behavior, imposed on them by their domestic league, since most other European Leagues (except for France; Andreff, 2007) do not limit external investments. Empirical studies support this conjecture (Drut & Raballand, 2012). If international competitiveness matters, either an UEFA-wide solution (without exemptions) or abolishment represents sound solutions.

Does it prevent influence of external investors?

At first glance, the 50plus1-rule succeeds in preventing "external" influence by investors. However, external investors can still hold more than 50 per cent of capital shares in the corporation, if they accept an underrepresentation in voting shares (Bauers, Lammert, & Hovemann, 2015). Next to the formal influence by exercising voting rights, investors enjoy informal influence due to the dependency of the team's budget on the investor (Bauers et al., 2015). For example, Martin Kind holds the majority share of capital in the adjoining legal parties of the club (other than the players stock corporation; ~53 per cent of the financing Hannover 96 Sales & Service GmbH & Co. KG[21],) and was chief executive of the private social club Hannover 96 e. V. for over 20 years. His economic influence is evident, even though the DFL denied his application to gain an exception from 50plus1 repeatedly. Furthermore, even with low voting influence other shareholders (e.g. officials and fans) might act opportunistically and mirror the opinion of the investor to prevent him/her from withdrawing his/her investments. So an influence exceeding the official voting rights must be suspected – and is only natural. Everyone who gives significant money injections will gain influence; this is the same for sponsors. In other words, at the end of the day professional football must decide whether it wants to enjoy big and growing budgets or not. In the first case, it will always be the case that various wealthy players gain influence, in the latter case, budget caps provide a more direct and less distortive instruments than the ambivalent 50plus1-rule. In any case, a distinction between "internal" and "external" budget growth or investment is not helpful and

[21] See Bauers et al. (2015).

protectionist as well as discriminatory by nature. It seeks to protect the anticompetitive rents of the insiders and restrict competitive market entry from outsiders.

5. Conclusion

The 50plus1-rule limits investment into a majority of commercial football teams in Germany by limiting the voting rights for the investors. A number of teams, however, are exempted from the rule due to various reasons. Our theoretical analysis (chapter 2) casts doubt on whether the 50plus1-rule is an adequate tool to achieve the goals it intends to. These doubts are further corroborated by our empirical analysis (chapter 3) that displays no indication for balancing effects of the 50plus1-rule. Neither financial nor competitive imbalance has been reduced since the implementation of the investment-restricting rule; quite in contrast, both have significantly increased since then. While other driving forces may be responsible for the increasing inequality, there is no empirical indication that the 50plus1-rule was effective in limiting such a development. Combined with the severity of its intervention into the freedom of business and the theoretical doubts on both its effectiveness and efficiency, we cannot derive a justification for the existence of the 50plus1-rule from our analysis.

Moreover, the rule itself is likely to cause distortions to competition. Next to disadvantaging German football teams in international competitions (as the other European countries have no such investment limiting rules), the exemptions that are inherent to the 50plus1-rule cause anticompetitive concerns. Teams not restricted by the rules should enjoy a competitive advantage over their rule-bound competitors. Our empirical analysis reveals indication of distortive effects within the league. Consequently, the rule, as it is, must be classified to be anticompetitive.

The within-league anticompetitive effects of the 50plus1-rule may be alleviated by discarding the exemptions (as well as by closing loopholes). However, while this would re-create a level-playing field for the teams in terms of investment-intake, even such a general 50plus1-rule without exemptions may exert an undesired anticompetitive effect by conserving and cementing the existing financial imbalances within the league. Differences in budgets are ever-increasing and the distance between few top teams and the rest has become so large that it cannot be realistically bridged by any team anymore without considerable catching-up investments. Limiting investment-intake, thus, takes away the probably only option for midfield teams to ever compete on equal sporting terms with the top teams. In other words, a sporting level-playing field is destroyed because of the path-dependency of past success and future

budgets, a natural phenomenon further fueled by other market-internal institutions like the unequal allocation of common revenues among the teams (Budzinski, 2018).

In summary, if financial and competitive imbalances shall be addressed by the market-internal regulator (the league), then institutions like the 50plus1-rule do not represent an effective and efficient avenue. Instead, institutions like revenue distribution schemes or budget and salary caps represent more promising ways.

References

Abadie, A. (2005). Semiparametric Difference-in-Differences Estimators. *The Review of Economic Studies*, *72*(1), 1–19.

Acero, I., Serrano, R., & Dimitropoulos, P. (2017). Ownership structure and financial performance in European football. *Corporate Governance: The International Journal of Business in Society*, *17*(3), 511–523.

Andreff, W. (2007). French Football: A Financial Crisis Rooted in Weak Governance. *Journal of Sports Economics*, *8*(6), 652–661.

Atkinson, A. B. (1975). *The Economics of Inequality*. Oxford: Clarendon Press.

Bauers, S., Lammert, J., Faix, A., & Hovemann, G. (2020). Club members in German professional football and their attitude towards the '50+1 Rule' – A stakeholder-oriented analysis. *Soccer & Society*, *21*(3), 274–288.

Bauers, S., Lammert, J., & Hovemann, G. (2015). Beherrschender Einfluss von Investoren im deutschen Profifußball – Eine Bestandsaufnahme und Analyse bestehender Umgehungen der 50+1-Regel. *Sciamus Sport Und Management*. (3), 1–17.

Becher, C., & Burbach, H. (2018). Die 50+1-Regel im Fokus der Kartellbehörden: Droht die komplette Kommerzialisierung des deutschen Profifußballs? *Bonner Rechtsjournal*, 108–114.

Berri, D. J., & Schmidt, M. B. (2006). On the Road With the National Basketball Association's Superstar Externality. *Journal of Sports Economics*, *7*(4), 347–358.

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How Much Should We Trust Differences-In-Differences Estimates? *The Quarterly Journal of Economics*, *119*(1), 249–275.

Biermann, C. (2012). Gegen den Geist der 50+1-Regel. Retrieved from https://www.spiegel.de/sport/fussball/red-bull-leipzig-gegen-den-geist-der-50-1-regel-a-824548.html

Brüggemann, T. (2018). Was besagt die 50+1-Regel genau? Wo ist sie festgehalten?: Der Hintergrund zur Diskussion. Retrieved from https://www.kicker.de/679442/artikel

Budzinski, O. (2014). The Competition Economics of Financial Fair Play. In O. Budzinski & A. Feddersen (Eds.), *Contemporary Research in Sports Economics: Proceedings of the 5th ESEA Conference* (pp. 77–98). Frankfurt a.M: Lang.

Budzinski, O. (2018). Financial Regulation as an Anticompetitive Institution. In M. Breuer & D. Forrest (Eds.), *The Palgrave Handbook on the Economics of Manipulation in Sport* (pp. 159–179). Cham: Springer International Publishing.

Budzinski, O., Gaenssle, S., & Kunz-Kaltenhäuser, P. (2019). How Does Online Streaming Affect Antitrust Remedies to Centralized Marketing? The Case of European Football Broadcasting Rights. *International Journal of Sport Finance*, *14*(3), 147–157.

Budzinski, O., & Müller, A. (2013). Finanzregulierung und internationale Wettbewerbsfähigkeit: der Fall Deutsche Bundesliga.

Budzinski, O., & Pawlowski, T. (2014). The behavioural economics of competitive balance: Implications for league policy and championship management. *Ilmenau Economics Discussion Papers, No. 89*.

Budzinski, O., & Szymanski, S. (2015). Are Restrictions of Competition by Sports Associations Horizontal or Vertical in Nature? *Journal of Competition Law & Economics*, *11*(2), 409–429.

Callaway, B., & Sant'Anna, P. H. C. (2018). Difference-in-Differences with Multiple Time Periods and an Application on the Minimum Wage and Employment. *SSRN Electronic Journal*.

Campbell, G. (2018). Ronaldo's Insane Juventus Shirt Sales Leave Neymar in the Dust.

Chan, M. K., & Kwok, S. (2018). Difference-in-Differences When Trends are Uncommon and Stochastic. *SSRN Electronic Journal.* Advance online publication.

Coates, D., Humphreys, B. R., & Zhou, L. (2012). Outcome Uncertainty, Reference-Dependent Preferences and Live Game Attendance: Working Papers from the University of Alberta, Department Economics.

Conn, D. (1998). *The football business: The modern football classic* (reprinted). *Mainstream sport*. Edinburgh: Mainstream Publishing.

Czarnitzki, D., & Stadtmann, G. (2002). Uncertainty of outcome versus reputation: Empirical evidence for the First German Football Division. *Empirical Economics*, *27*(1), 101–112.

Depken, C. A. (1999). Free-Agency and the Competitiveness of Major League Baseball. *Review of Industrial Organization*, *14*(3), 205–217.

Depken, C. A. (2016). Fan Loyalty in Professional Sports. *Journal of Sports Economics*, *2*(3), 275–284.

Deutsche Wirtschaftsnachrichten (2019). Großinvestoren könnten bald die Bundesliga aufkaufen. Retrieved from https://deutsche-wirtschafts-nachrichten.de/286495

DFL (2018). Fragen und Antworten zur 50+1-Regel. Retrieved from https://www.dfl.de/de/aktuelles/fragen-und-antworten-zur-50-plus-1-regel/

DFL (2019). Wer qualifiziert sich für Champions League und Europa League? Retrieved from https://www.bundesliga.com/de/bundesliga/news/wer-qualifiziert-sich-wann-champions-europa-league-2166

DFL (2020). The 2020 Economic Report. Retrieved from https://media.dfl.de/sites/3/2020/02/EN_DFL_Wirtschaftsreport_2020_S.pdf

Dietl, H. M., & Franck, E. (2007). Governance Failure and Financial Crisis in German Football. *Journal of Sports Economics*, *8*(6), 662–669.

Dietl, H. M., Franck, E., & Lang, M. (2008). Overinvestment in Team Sports Leauges: A Contest Theory Model. *Scottish Journal of Political Economy*, *55*(3), 353–368.

Drut, B., & Raballand, G. (2012). Why does financial regulation matter for European professional football clubs? *International Journal of Sport Management and Marketing*, *11*(1/2), 73–88.

Eicker, F. (1967). Limit theorems for regressions with unequal and dependent errors. *Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability*. (1), 59–82.

Falter, J.-M., & Perignon, C. (2000). Demand for football and intramatch winning probability: an essay on the glorious uncertainty of sports. *Applied Economics*, *32*(13), 1757–1765.

Forrest, D., & Simmons, R. (2002). Team Salaries and Playing Success in Sports: A Comparative Perspective. In H. Albach & B. Frick (Eds.), *ZfB - Ergänzungshefte: Vol. 4. Sportökonomie* (Vol. 2, pp. 221–238). Wiesbaden: Gabler Verlag.

Fort, R., & Quirk, J. (1995). Cross-subsidization, Incentives, and Outcomes in Professional Team Sports Leagues. *Journal of Economic Literature*, *33*(3), 1265–1299.

Franck, E. (2010). „Zombierennen“ und „Patenonkel“–Warum deutsche Fußballklubs in der Champions League regelmäßig den Kürzeren ziehen. *Schmalenbachs Zeitschrift Für Betriebswirtschaftliche Forschung*, *62*(S62), 1–13.

Franck, E. (2014). Financial Fair Play in European Club Football – What is it all about? *International Journal of Sport Finance*, *9*(3), 193–217.

Franck, E., & Nüesch, S. (2011). The effect of wage dispersion on team outcome and the way team outcome is produced. *Applied Economics*, *43*(23), 3037–3049.

Frick, B. (2005). '…und Geld schießt eben doch Tore': Die Voraussetzungen sportlichen und wirtschaftlichen Erfolges in der Fußball-Bundesliga. *Sportwissenschaft*, *35*(3), 250–270.

García, J., & Rodríguez, P. (2002). The Determinants of Football Match Attendance Revisited. *Journal of Sports Economics*, *3*(1), 18–38.

Gini, C. (1921). Measurement of Inequality of Incomes. *The Economic Journal*, *31*(121), 124–126.

Herberger, T., Oehler, A., & Wedlich, F. (2013). Finanzierungsoptionen für Fußballbundesligisten – Eine perspektivengeleitete ökonomische Analyse auf Basis einer Differenzierung verschiedener Fangruppen vor dem Hintergrund der „50+1"- und „Financial Fairplay"-Regelung.

Hirschman, A. O. (1964). The Paternity of an Index. *The American Economic Review*, *54*(5), 761–762.

Jewell, R. T. (2017). The Effect of Marquee Players on Sports Demand. *Journal of Sports Economics*, *18*(3), 239–252.

Kamerschen, D. R., & Lam, N. (1975). A Survey of Measures of Market Power. *Rivista Internazionale Di Scienze Economiche E Commerciali*. (22), 1131–1156.

Késenne, S. (1996). League management in professional team sports with win maximizing clubs. *Journal of Sports Economics*. (1), 56–65.

Késenne, S. (2007). The Peculiar International Economics of Professional Football in Europe. *Scottish Journal of Political Economy*, *54*(3), 388–399.

Kuypers, T. J. (1996). The beautiful game?: An econometric study of why people watch English football.

Lammert, J., Hovemann, G., & Bauers, S. (2018). Die 50+1-Regel im deutschen Profifußball – Eine qualitative Evaluation von Lösungsvorschlägen zur Herstellung des regulatorischen Sollzustandes. *Sport Und Management*. (2), 21–45.

Lang, M., Grossman, M., & Theiler, P. (2011). The Sugar Daddy's Game: How Wealthy Investors Change Competition in Professional Team Sports. *Journal of Institutional and Theoretical Economics*, *4*(167), 557–577.

Leach, S., & Szymanski, S. (2015). Making Money Out of Football. *Scottish Journal of Political Economy*, *62*(1), 25–50.

Lechner, M. (2010). The Estimation of Causal Effects by Difference-in-Difference Methods. *Foundations and Trends in Econometrics*, *4*(3), 165–224.

Maier-Rigaud, F. P., & Sudaric, S. (2019). The Difference-in-Differences approach to the estimation of cartel damage. *CPI Antitrust Chronicle*, *3*(1), 1–7.

Massey, P. (2007). Are sports cartels different? An analysis of EU Commission decisions concerning collective selling agreements for football broadcasting rights. *World Competition*, *30*, 87–106.

Michie, J., & Oughton, C. (2004). Competitive Balance in Football: Trends and Effects.

Müller, J. C., Lammert, J., & Hovemann, G. (2012). The Financial Fair Play Regulations of UEFA: An Adequate Concept to Ensure the Long-Term Viability and Sustainability of European Club Football? *International Journal of Sport Finance*, *7*(2), 117–140.

Neale, W. C. (1964). The Peculiar Economics of Professional Sports: A Contribution to the Theory of the Firm in Sporting Competition and in Market Competition. *The Quarterly Journal of Economics*, *78*(1), 1–14.

Owen, P. D., & King, N. (2013). Competitive Balance Measures in Sports Leagues: The Effects of Variation in Season Length. Working Paper #92.

Pawlowski, T., Breuer, C., & Hovemann, A. (2010). Top Clubs' Performance and the Competitive Situation in European Domestic Football Competitions. *Journal of Sports Economics*, *11*(2), 186–202.

Pawlowski, T., & Budzinski, O. (2013). The (Monetary) Value of Competitive Balance for Sport Consumers: A Stated Preferences Approach to European Professional Football. *International Journal of Sport Finance*, *8*(2), 112–123.

Pawlowski, T., & Nalbantis, G. (2019). Competitive Balance: Measurement and Relevance. In P. Downward, B. Frick, & B. R. Humphreys (Eds.), *The Sage Handbook of Sports Economics* (pp. 154–162).

Peeters, T. (2012). Media revenue sharing as a coordination device in sports leagues. *International Journal of Industrial Organization*, *30*(2), 153–163.

Quirk, J., & Fort, R. (1992). *Pay Dirt: The Business of Professional Team Sports*. Princeton, New Jersey: Princeton University Press.

Quitzau, J. (2003). *Die Vergabe der Fernsehrechte an der Fußball-Bundesliga: Wohlfahrtsökonomische, wettbewerbspolitische und sportökonomische Aspekte der Zentralvermarktung*. *Schriften zur Wirtschaftstheorie und Wirtschaftspolitik: Vol. 26*. Frankfurt am Main: Lang.

Randerath, M. (2018). 1. Bundesliga. Retrieved from Fussball-Geld.de

Reuters (2018). Kartellamt soll "50+1"-Regelung im deutschen Fußball prüfen. Retrieved from https://de.reuters.com/article/deutschland-fussball-dfl-idDEKBN1K81BM

Rheinische Post (2018). Lizenzspieleretat der Fußball-Bundesligisten in der Saison 2013/2014.

Rohde, M., & Breuer, C. (2016). Europe's Elite Football: Financial Growth, Sporting Success, Transfer Investment, and Private Majority Investors. *International Journal of Financial Studies*, *4*(2), 12.

Rohde, M., & Breuer, C. (2017). The market for football club investors: a review of theory and empirical evidence from professional European football. *European Sport Management Quarterly*, *17*(3), 265–289.

Rother, T. (2018). Das sind die Effizienzmeister der Bundesliga. Retrieved from https://www.90min.de/posts/5966464-das-sind-die-effizienzmeister-der-bundesliga

Rottenberg, S. (1956). The Baseball Players' Labor Market. *Journal of Political Economy*, *64*(3), 242–258.

Rubin, D. B. (1986). Statistics and Causal inference: which ifs have causal answers. *Journal of the American Statistical Association*, *81*(396), 961–962.

Sass, M. (2012). Long-term Competitive Balance under UEFA Financial Fair Play Regulations. Working Paper Series.

Schmidt, M. B. (2001). Competition in Major League Baseball: The impact expansion. *Applied Economics Letters*, *8*(1), 21–26.

Schmidt, M. B., & Berri, D. J. (2001). Competitive Balance and Attendance. *Journal of Sports Economics*, *2*(2), 145–167.

Schubert, M., & Hamil, S. (2018). Financial Doping and Financial Fair Play in European Club Football Competitions. In M. Breuer & D. Forrest (Eds.), *The Palgrave Handbook on the Economics of Manipulation in Sport* (pp. 135–157). Cham: Springer International Publishing.

Scully, G. (1989). *The Business of Major League Baseball*. Chicago, Ill: The University of Chicago Press.

Simmons, R. (2006). The demand for spectator sports. In S. Szymanski & W. Andreff (Eds.), *Elgar original reference. Handbook on the economics of sport* (77-89). North Hampton, Mass: Edward Elgar.

Spiegel Online (2019). Martin Kind zieht 50+1-Antrag zurück. Retrieved from https://www.spiegel.de/sport/fussball/hannover-96-martin-kind-zieht-50-1-antrag-zurueck-a-1279408.html

Storm, R. K., & Nielsen, K. (2012). Soft budget constraints in professional football. *European Sport Management Quarterly*, *12*(2), 183–201.

Suliak, H. (2019). Wettbewerbshüter könnten 50+1-Regel kippen: Prüfung durchs Bundeskartellamt.

Tukey, J. W. (1997). *Exploratory data analysis*. *Addison-Wesley series in behavioral science Quantitative methods*. Reading, Mass.: Addison-Wesley.

TZ (2019). Streit um 50+1-Regel: Bundeskartellamt schreibt Vereine an. Retrieved from https://www.tz.de/sport/fussball/streit-um-50-1-regel-bundeskartellamt-schreibt-vereine-an-zr-11111016.html

UEFA (2005). Financial Report 2003/2004.

UEFA (2019). 2019/20 UEFA club competitions revenue distribution system. Retrieved from https://www.uefa.com/insideuefa/stakeholders/clubs/news/newsid=2616265.html

Vöpel, H. (2009). Wettbewerb und Regulierung in der Fußball-Bundesliga. *Wirtschaftswissenschaftliches Studium*. (12), 629–634.

Vöpel, H. (2011). Do We Really Need Financial Fair Play in European Club Football? An Economic Analysis. *CESifo DICE Report*, *9*(3), 54–59.

Walsh, A. J., & Giulianotti, R. (2001). This Sporting Mammon: A Normative Critique of the Commodification of Sport. *Journal of the Philosophy of Sport*, *28*(1), 53–77.

White, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica*, *48*(4), 817.

Wilkesmann, U. (2014). Geld schießt Tore? Zur sozialen Ungleichheit im Fußball. In C. Behnke, D. Lengersdorf, & S. Scholz (Eds.), *Wissen – Methode – Geschlecht: Erfassen des fraglos Gegebenen*. Wiesbaden: Springer Fachmedien Wiesbaden.

Youssef, A. (2018). Billionaire Turki Al-Sheikh announces withdrawal from investing in Egypt's football.

Appendix

	(1)	(2)	(3)
VARIABLES	Budgets	Points in Season	Points in Season
Exception = 1	-13.80	5.974***	-2.196
	(8.518)	(1.542)	(3.746)
	-31.23 - 3.617	2.844 - 9.104	-9.801 - 5.409
	(0.116)	(0.000447)	(0.561)
Points in Previous Season	0.566**		
	(0.248)	-	-
	0.0583 - 1.074		
	(0.0301)		
Budget	-	0.157***	0.152***
		(0.0342)	(0.0320)
		0.0880 - 0.227	0.0868 - 0.217
		(5.30e-05)	(3.51e-05)
Exception#Budget_infl_Mio	-	-	0.163**
			(0.0725)
			0.0162 - 0.311
			(0.0306)
Season = 2, 1990/1991	-	-	-
Season = 5, 1993/1994	-	-	.
Season = 6, 1994/1995	-	-	.
Season = 7, 1995/1996	-	-	.
Season = 8, 1996/1997	-	0.00332	0.0515
		(3.130)	(3.145)
		-6.352 - 6.358	-6.332 - 6.435
		(0.999)	(0.987)
Season = 9, 1997/1998	25.81***	-5.850*	-5.605
	(4.802)	(3.400)	(3.447)
	15.98 - 35.63	-12.75 - 1.053	-12.60 - 1.392
	(8.97e-06)	(0.0942)	(0.113)
Season = 10, 1998/1999	35.76***	-8.779**	-8.624**
	(5.709)	(3.885)	(3.821)
	24.08 - 47.44	-16.67 - -0.892	-16.38 - -0.866
	(7.75e-07)	(0.0302)	(0.0304)
Season = 11, 1999/2000		(0.734)	
		1.897	
		(5.643)	
		-9.915 - 13.71	
Season = 12, 2000/2001	24.38***	-4.028	-3.598
	(5.573)	(2.700)	(2.762)
	12.98 - 35.78	-9.508 - 1.453	-9.206 - 2.009

	(0.000144)	(0.145)	(0.201)
Season = 13, 2001/2002	31.97***	-5.654*	-5.276*
	(6.438)	(2.882)	(2.927)
	18.80 - 45.13	-11.51 - 0.197	-11.22 - 0.666
	(2.79e-05)	(0.0578)	(0.0801)
Season = 14, 2002/2003	20.00***	-5.494**	-5.301**
	(4.927)	(2.440)	(2.450)
	9.925 - 30.08	-10.45 - -0.540	-10.27 - -0.327
	(0.000340)	(0.0307)	(0.0374)
Season = 15, 2003/2004	38.87***	-15.47***	-15.27***
	(6.209)	(2.629)	(2.603)
	26.17 - 51.56	-20.81 - -10.13	-20.56 - -9.989
	(7.83e-07)	(1.10e-06)	(1.15e-06)
Season = 16, 2004/2005	24.24***	-2.481	-2.312
	(8.361)	(3.841)	(3.902)
	7.142 - 41.34	-10.28 - 5.316	-10.23 - 5.609
	(0.00706)	(0.523)	(0.557)
Season = 17, 2005/2006	18.42***	-9.224**	-9.152**
	(6.241)	(4.160)	(4.156)
	5.658 - 31.19	-17.67 - -0.779	-17.59 - -0.715
	(0.00620)	(0.0332)	(0.0343)
Season = 18, 2006/2007	10.11*	-3.253	-2.810
	(5.428)	(3.935)	(4.049)
	-0.996 - 21.21	-11.24 - 4.736	-11.03 - 5.411
	(0.0728)	(0.414)	(0.492)
Season = 19, 2007/2008	12.62*	-3.475	-2.937
	(6.283)	(3.374)	(3.578)
	-0.234 - 25.47	-10.32 - 3.374	-10.20 - 4.327
	(0.0540)	(0.310)	(0.417)
Season = 20, 2008/2009	17.65***	-5.585*	-5.476*
	(5.960)	(3.142)	(3.181)
	5.459 - 29.84	-11.96 - 0.794	-11.93 - 0.982
	(0.00606)	(0.0842)	(0.0940)
Season = 21, 2009/2010	17.69**	-5.474*	-5.281
	(7.111)	(3.229)	(3.326)
	3.146 - 32.23	-12.03 - 1.081	-12.03 - 1.472
	(0.0189)	(0.0989)	(0.121)
Season = 22, 2010/2011	20.69**	-3.829	-3.693
	(7.698)	(3.041)	(3.130)
	4.945 - 36.43	-10.00 - 2.344	-10.05 - 2.661
	(0.0118)	(0.216)	(0.246)
Season = 23, 2011/2012	20.80**	-5.840*	-5.654*
	(8.180)	(2.988)	(3.011)
	4.073 - 37.53	-11.91 - 0.227	-11.77 - 0.458
	(0.0166)	(0.0587)	(0.0687)
Season = 24, 2012/2013	24.95**	-4.189	-4.007
	(9.500)	(3.292)	(3.273)
	5.519 - 44.38	-10.87 - 2.495	-10.65 - 2.637
	(0.0136)	(0.212)	(0.229)
Season = 25, 2013/2014	28.29***	-5.087	-4.885
	(10.10)	(3.291)	(3.279)
	7.629 - 48.95	-11.77 - 1.595	-11.54 - 1.772
	(0.00899)	(0.131)	(0.145)
Season = 26, 2014/2015	36.56***	-6.488	-6.972
	(12.25)	(4.560)	(4.424)
	11.50 - 61.62	-15.75 - 2.770	-15.95 - 2.010
	(0.00573)	(0.164)	(0.124)
Season = 27, 2015/2016	36.50***	-7.853**	-8.060**
	(12.56)	(3.204)	(3.133)
	10.81 - 62.20	-14.36 - -1.350	-14.42 - -1.700

	(0.00695)	(0.0194)	(0.0145)
Season = 28, 2016/2017	31.86***	-8.006***	-7.871***
	(10.53)	(2.456)	(2.466)
	10.33 - 53.39	-12.99 - -3.021	-12.88 - -2.864
	(0.00515)	(0.00248)	(0.00299)
Season = 29, 2017/2018	-	-	-
Season = 30, 2018/2019	57.07***	-11.76***	55.77***
	(18.44)	(4.015)	(19.83)
	19.36 - 94.78	-19.91 - -3.608	15.22 - 96.32
	(0.00433)	(0.00595)	(0.00872)
Constant	-3.775	45.20***	45.31***
	(15.91)	(1.882)	(1.875)
	-36.32 - 28.77	41.38 - 49.03	41.50 - 49.12
	(0.814)	(0)	(0)
Observations	268	329	329
R-squared	0.373	0.345	0.117
Number of Teamnr	30	36	36

Robust se, pval in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Tab. 4, Appendix

Diskussionspapiere aus dem Institut für Volkswirtschaftslehre der Technischen Universität Ilmenau

Nr. 69 *Budzinski, Oliver:* Empirische Ex-Post Evaluation von wettbewerbspolitischen Entscheidungen: Methodische Anmerkungen, Januar 2012.

Nr. 70 *Budzinski, Oliver:* The Institutional Framework for Doing Sports Business: Principles of EU Competition Policy in Sports Markets, January 2012.

Nr. 71 *Budzinski, Oliver; Monostori, Katalin:* Intellectual Property Rights and the WTO, April 2012.

Nr. 72 *Budzinski, Oliver:* International Antitrust Institutions, Juli 2012.

Nr. 73 *Budzinski, Oliver; Lindstädt, Nadine:* Newspaper vs. Online Advertising - Is There a Niche for Newspapers in Modern Advertising Markets?, Juli 2012a.

Nr. 74 *Budzinski, Oliver; Lindstädt, Nadine:* Newspaper and Internet Display Advertising - Co-Existence or Substitution?, Juli 2012b.

Nr. 75 *Budzinski, Oliver:* Impact Evaluation of Merger Control Decisions, August 2012.

Nr. 76 *Budzinski, Oliver; Kuchinke, Björn A.:* Deal or No Deal? Consensual Arrangements as an Instrument of European Competition Policy, August 2012.

Nr. 77 *Pawlowski, Tim, Budzinski, Oliver:* The (Monetary) Value of Competitive Balance for Sport Consumers, Oktober 2012.

Nr. 78 *Budzinski, Oliver:* Würde eine unabhängige europäische Wettbewerbsbehörde eine bessere Wettbewerbspolitik machen?, November 2012.

Nr. 79 *Budzinski, Oliver; Monostori, Katalin; Pannicke, Julia:* Der Schutz geistiger Eigentumsrechte in der Welthandelsorganisation - Urheberrechte im TRIPS Abkommen und die digitale Herausforderung, November 2012.

Nr. 80 *Beigi, Maryam H. A.; Budzinski, Oliver:* On the Use of Event Studies to Evaluate Economic Policy Decisions: A Note of Caution, Dezember 2012.

Nr. 81 Budzinski, Oliver; Beigi, Maryam H. A.: Competition Policy Agendas for Industrializing Countries, Mai 2013.

Nr. 82 *Budzinski, Oliver; Müller, Anika:* Finanzregulierung und internationale Wettbewerbsfähigkeit: der Fall Deutsche Bundesliga, Mai 2013.

Nr. 83 *Doose, Anna Maria:* Methods for Calculating Cartel Damages: A Survey, Dezember 2013.

Nr. 84 *Pawlowski, Tim; Budzinski, Oliver:* Competitive Balance and Attention Level Effects: Theore-tical Considerations and Preliminary Evidence, März 2014.

Nr. 85 *Budzinski, Oliver:* The Competition Economics of Financial Fair Play, März 2014.

Nr. 86 *Budzinski, Oliver; Szymanski, Stefan:* Are Restrictions of Competition by Sports Associations Horizontal or Vertical in Nature?, März, 2014.

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